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Presidents' Conference Committee (U.S.)

Atlanta, Birmingham & Atlantic Railroad Company

Philadelphia

[1916]

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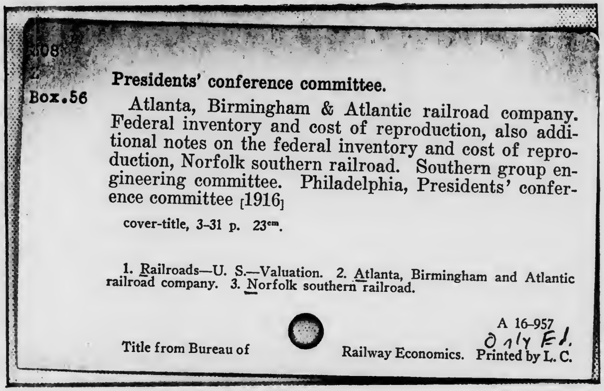

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Presidents' conference committee.

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Prof. E. R. A. Seligman

ATLANTA, BIRMINGHAM & ATLANTIC RAILROAD COMPANY

FEDERAL INVENTORY
AND
COST OF REPRODUCTION
ALSO
ADDITIONAL NOTES ON THE
FEDERAL INVENTORY
AND COST OF REPRODUCTION
NORFOLK SOUTHERN RAILROAD

SOUTHERN GROUP ENGINEERING COMMITTEE

OFFICE OF
GENERAL SECRETARY
PRESIDENTS' CONFERENCE COMMITTEE
PHILADELPHIA, PA.

MBH, June 26, '17

ATLANTA, BIRMINGHAM & ATLANTIC RAILROAD COMPANY.

COST OF REPRODUCTION.

The members of the Southern Engineering Group are connected with railroads that are located in the same territory as the Atlanta, Birmingham & Atlantic Railroad, having lines that cross it or parallel it, or at least extend from the seaboard westward, crossing, as it does, the ranges of the Blue Ridge and the Alleghany Mountains. They are, therefore, quite familiar with this property. The various members have also visited the road since the valuation was undertaken. Statements have been prepared by the committee after the meeting in Atlanta on June 7 and 8, 1916, at which were present Valuation Engineers from other railroads in the neighborhood located adjacent to the A., B. & A. R. R. There were present:

Engineering Committee, Southern Group—W. G. Brantley, D. W. Lum, D. W. Gross; C. S. Churchill, Chairman.

Atlanta, Birmingham & Atlantic Railroad—E. M. Durham, Jr., Special Engineer.

Louisville & Nashville Railroad—W. H. Courteney, Chief Engineer.

Central of Georgia Railway—J. W. Fox, Valuation Engineer.

Atlanta & West Point Railway—W. H. Smith, Auditor, and others.

GENERAL DESCRIPTION.

The general conditions and character of work on this line may be briefly described by valuation sections, as follows:

Section No. 1. Brunswick.

The soil is principally sand and the grading is light.

Section No. 2.

As far as Sessoms, comprises low, sandy country, with swamps which are filled with water in wet seasons, and there is approximately six miles of marshy land. Work is light, with small amounts of calico clay. The roads are sandy; the country was heavily timbered.

Section No. 2-a. Sessoms to Fitzgerald.
Section No. 4. Thomasville to Fitzgerald.

The country is higher and more rolling; cuts and fills are very long and shallow. Sandy material occurs, with calico clay in practically all cuts of four feet and over in depth. There are some fairly good roads close to the line on Section No. 4, except where streams are encountered. The original clearing in this section was heavy timber.

Section No. 5. Fitzgerald to Montezuma, Ga.

This country is more rolling than the preceding, with the same long shallow cuts and fills prevailing. Some of the cuts are much heavier and there is a greater proportion of calico clay. Close to Montezuma there is a cut containing over 300,000 cubic yards, which contains some classified material, but mostly sandy clay.

Section No. 6. Montezuma to Manchester, Ga.

From Oglethorpe to Paschal the soil is mostly sandy, although there is some clay in the deeper cuts. From Paschal to Manchester there are a number of heavy cuts and fills with considerable classified material. The general character of the soil is clay.

Section No. 8. Manchester, Ga., to Atlanta, Ga.

This is a heavy rolling country with some stretches of light work where the line follows the ridge, but in crossing streams and ridges the work is fairly heavy, and considerable granite, gneiss rock and other classified material is encountered in crossing the ridges. Where light work prevails the soil is sandy clay.

Section No. 10. Manchester, Ga., to Alabama State Line.

Clay and some classified material is encountered; the work is fairly heavy and long hauls are involved.

Sections Nos. 11, 12 and 13-A. Alabama State Line to Bessemer and Mulga.

This constituted the heaviest work on the A., B. & A. R. R. as the line is directly across the mountain ridges, and a great deal of granite, gneiss, sandstone and other classified material is encountered. There are no roads over a greater portion of the line which are other than mountain trails. There is practically no sand in this section, but a great deal of shale, clay and chert, which is adversely affected in wet season.

Sections Nos. 13 and 14.

This is directly in the Birmingham district and the work is light, although the soil is mostly limestone, clay, with some chert.

* * * * * * * * * * * *

Construction Period.

The Government annual normal precipitation map for Georgia, with the route of the A., B. & A. R. R. shown thereon, shows the normal rain falls to be considerably over forty-five inches, running up to fifty-five inches. The normal annual precipitation notes between 1895 and 1915, showing the months of heaviest rain fall along the A., B. & A. R. R., compiled by the U. S. Weather Observer, indicate that east of Montezuma the months of June to September are those of the heaviest rains; and west of that point there are two periods of heavy rains: namely, February and March, and July and August. These conditions described have a great bearing upon the length of reproduction period, as well as upon the cost of reproduction. From a careful consideration of the period of reproduction on other roads through similar territory as that described, bearing in mind that construction work is interfered with in the rainy seasons during about four months in each year, rains lasting from two to three days at a time, rain known to have occurred every day for a month at a time; also taking into account the fact that in the marshy and low sections, grading is interfered with by water for about three months and the streams subject to sudden rise, it is clear that a construction period of three years, which is mentioned in the Reproduction Report, is entirely too low; and the Committee agrees with the detailed reasons given by Special Engineer Durham, of the A., B. & A. R. R., for the placing of this period at three years east of Montezuma and five years west.

LENGTH OF CONSTRUCTION PERIOD (Various Lines in the South).

RAILROAD	Length Miles	Survey Started	Construction Started	Track Started	Track Constructed	Thro Traffic Started	Grading, Etc., Completed	Ballast, Etc., Completed	Construction Completed	Total Time, Years
Jesup to Folkston, Ga. (Jesup Short Line, Atlantic Coast Line).	54	Jan. 1901	May 1901	....	1902	May 1902	May 1903	May 1904	May 1904	3.4
Washington to Vandermere, N. C. (Washington & Vandemere Railroad, Atlantic Coast Line)...........	40	Oct. 1905	Nov. 1906	....	1908	July 1908	Oct. 1908	Dec. 1909	Mar. 1910	4.4
Winston-Salem to Wadesboro, N. C. (Winston-Salem Southbound Railway), Atlantic Coast Line Railroad, Norfolk & Western Railway...........	89	*Prelim. 05–07 Final 1909	Jan. 1910	May 1910	Nov. 1910	June 1911	June 1912	June 1915	June 1915	7
Atlanta, Ga., to Birmingham, Ala. (Atlanta & Birmingham Line, Seaboard Air Line)...........	163	1900	Oct. 1902	1903	Dec. 1904	June 1905	1904	July 1906	July 1906	6
Norfolk, Va., to Deepwater, W. Va. (Virginian Railway)...........	444	1902	1904	1905	Feb. 1909	1910	1914	1915	1915	13
Naugatuck to Kenova, W. Va. (Big Sandy Low Grade Line, Norfolk & Western Railway)...........	59	1901	1902	1903	Dec. 1904	Dec. 1904	1907	1907	1907	6
Phœbe to Forest, Va. (Lynchburg Belt Line, Norfolk & Western Railway)...........	23	Jan. 1906	June 1906	Jan. 1907	Dec. 1907	Apr. 1908	Dec. 1908	Dec. 1908	Dec. 1909	4

*Chartered 1905.

Part of Carolina, Clinchfield & Ohio Railway, from Dante, Va., to Spartanburg, S. C. Total length, 242 miles. Original preliminary surveys made 1888-1889. Twenty-three miles constructed 1889, and forty-three miles extension 1901-1903. Balance, 176 miles.

Surveys started through line, Charter 1905, 176 miles........Feb. 1905
Construction started........July 1905
Track started........ 1907
Track constructed........Dec. 1910

Through traffic started........June 1911
Ballasting completed........June 1911
Construction completed........Dec. 1911
Total time for 176 miles of line...6.8 years

The conferences held between the railroads and the Division of Valuation have brought out the general principles of reproduction, and Valuation Order No. 3, with its requirements, further shows that the costs of future work added to an existing property shall include every item that goes into the new piece of property. If a road had been completed in every detail a short period before date of valuation and a record of costs had been fully kept, the book records together with any proper costs of construction incurred between the time the track was connected up and the full completion of the work would represent the inventory at date of valuation to which proper reproduction prices would be applied. This method of inventorying is actually being followed by the Government in some cases of recently-constructed railroads. In other words, it is all the property in existence at the date of valuation that is to be inventoried, with the identical units and all the materials and quantities entering into and incidental to these units, which must be considered in making up the cost of reproduction and this must necessarily include the cost of reproducing the track and other parts of the railroad in its complete and substantial condition found at the date of valuation. With these requirements before us, and after a study of the report, the committee concludes that there have been omitted from the report a large number of items of cost. In the first place, the report refers in many instances to unit costs being based upon the cost of work done between the years 1905 and 1908, and even goes as far back as 1903. On most of the railroads in the South ordinary labor has increased since the years 1904 to 1906, inclusive, from twenty-three to twenty-five per cent. This constitutes the first omission in costs. Other important omissions that will be referred to by the committee in more or less detail are as follows:

Engineering (too low).

Contingencies not provided for.

Properties used by the Atlanta, Birmingham & Atlantic jointly with other carriers.

Proper interest during construction.

Overhead costs.

Omission of proper reproduction costs as made in the cost of dredging at Brunswick.

Omission in grading on the east end on account of not giving due allowance for effect of rain-fall; also from interruption, west end.

Omission in grubbing and clearing east of Montezuma on account of not including items of work that were actually done in building the road.

Omission on account of assuming that contractors will furnish free of cost any borrow pits that are required. The cost of borrow pits must ultimately be paid for by the railroad and the contractors do not include them in their costs.

Omission in cost of grading due to improper estimate of swell of rock and loose rock.

Omission in connection with cost of grading due to not taking into account contractor's raises in wages in recent years.

Omission in bridge construction due to assumption that sand and stone can be secured in many places from a short distance, whereas, as a matter of fact, they must be secured in many instances by long haul.

Omissions have been made in freight costs for ties and handling, and in allowance of proper cost for ballast f. o. b. cars and distributed along track.

Omissions occur especially in connection with track-laying and surfacing, allowance therefor being entirely too small.

Losses during construction have not been estimated for as great an amount as is actually found in practice.

In estimating buildings by the cubic foot the resulting figures are found to be too low as compared with buildings on other roads in the south.

In the case of equipment, not enough allowance is made for the effect of efficient maintenance in the continuing of its life.

There has been omitted from the reproduction costs those in connection with the Eastern Railway of Alabama.

Telegraph property which is jointly operated and maintained by the A., B. & A. R. R. has been omitted.

The costs of overhead railroad crossings paid for by the A., B. & A. R. R. are not included in the inventory.

Materials and supplies, etc., on hand have been omitted from the inventory.

Assessments for public improvements are omitted.

Cost of patterns in stock is omitted.

Clearing land at the terminals, *i. e.*, removing buildings therefrom, seems to have been omitted from the inventory.

All these items of omission amount in the aggregate to a large sum. A number of them have been treated in detail in the comments filed by Special Engineer Durham, of the A., B. & A. R. R., and reference is also made to some of them in the following by the committee:

Interest During Construction.

This has been figured for a period of time that is too short, as the required construction periods are three and five years; and the interest allowed is only at the rate of five per cent., whereas, the records of construction on portions of the A., B. & A. R. R. show that when an attempt was made to issue securities at a rate approaching six per cent. large discounts were necessary. It seems evident, therefore, that an interest charge in this section should correspond more nearly with the legal rate. The legal rate in Georgia is seven per cent. Certainly under these circumstances nothing lower than six per cent. should be used in the estimate, and the total periods should be three and five years.

Account No. 1. Engineering.

In connection with engineering, an error has occurred in adhering to percentage alone, when as a matter of fact mileage is also a factor, as well as the cost of the work. The allowance of only two and one half per cent. on the eastern portion of the road, mentioned in the report, is equivalent to only about $270 per mile, and the average for the entire line is only $945 per mile of road and $744 per mile of track. The tabulated statement "Examples of Cost of Engineering in Southern States," next hereto attached, gives ample proof for a cost over the whole line of at least five per cent., with a minimum of $750 per mile for the east end.

EXAMPLES OF COST OF ENGINEERING IN SOUTHERN STATES FOR RAILROAD CONSTRUCTION DURING RECENT YEARS.

RAILROAD	Miles of Track	Per Mile of all Tracks	Per Mile of Road
Big Sandy Low Grade Line, Norfolk & Western Railway	73	$2,575	
Williamson & Pond Creek Railroad in Kentucky, adjacent to West Virginia Line	25	2,010	
Indian Creek Branch, Norfolk & Western Railway	15	6,862	
Lynchburg Belt Line, Norfolk & Western Railway	33	2,380	
Petersburg Belt Line, Norfolk & Western Railway	15	2,600	
Virginian Railway (Main)	444		$2,870
Winston-Salem Southbound Railway (Main)	89		2,148
Atlanta & Birmingham Line, Seaboard Air Line Railway (Main)	163		1,750
A line in Alabama (Main)	38		3,585
A line in central part of North Carolina (Road)	52		1,723
Three Subsidiary Lines of Louisville & Nashville Railroad:			
No. 1			2,120
No. 2			1,240
No. 3			1,230

Account No. 3. Grading. Line East of Montezuma.

Grubbing and clearing east of Montezuma has been determined from observation today instead of from the record of conditions as they existed upon the right of way at the time the railroad was constructed. There are many examples among Southern railroads of roads having been built within the last four or five years where all vestige of the timber adjacent to the right of way has been removed, villages and industries have been built up, but the construction cost records on these lines which have only just recently been completed show the yards of rock and other materials moved, also the amount of grubbing and clearing done. According to the general requirements for filling out data under Order No. 3, we should be governed entirely by the actual facts as far as revealed by the records or knowledge.

As to the costs, search has been made of the cost of clearing and grubbing, and we find it has ranged through the Southern States for clearing, generally from thirty to fifty dollars per acre, and for grubbing from forty dollars to seventy dollars per acre. The Virginian Railway in the same district, from the coast paid fifty dollars per acre for clearing and two hundred dollars per acre for grubbing. The Winston-Salem Southbound Railway, in North Carolina, paid $42.42 per acre for clearing and $53.70 per acre for grubbing. The figures in Georgia on the Altanta, Brimingham & Atlantic Railroad should certainly not be less than thirty dollars per acre for clearing and forty dollars per acre for grubbing.

In grading the Jesup Short Line (Atlantic Coast Line Railroad), which crosses the Atlanta, Birmingham & Atlantic Railroad, the price paid was 16.5 cents roadbed measurement, but the company's books show that extras to the amount of at least twelve per cent. above contract prices were paid, and consequently 16.5 cents contract price becomes 18.5 cents per yard cost to the company in 1902. At the time of the construction of this line railroad laborers were paid eighty cents; in 1914 even section laborers were paid one dollar per day, while contractors' laborers are paid much more. Grading cost is nearly all for labor, so that even the increase in railroad laborers' pay would cause prices to be twenty-five to fifty per cent. higher at the date of valuation than in 1902. Consequently, 18.5 cents cost to the company in 1902 becomes twenty-three cents as cost to the Jesup Short Line in 1914. Twenty-nine contracts let by the Atlantic Coast Line in the last ten years, amounting to over 6,000,000 yards, show as follows:

One at sixteen cents; one at 17.5 cents; one at eighteen cents; one at 18.5 cents; four at nineteen cents; five at twenty cents; three at twenty-one cents; two at twenty-two cents; one at 22.5 cents; three at twenty-five cents; two at 25.5 cents; one at thirty cents and one at thirty-three cents. The contractor on the sixteen-cent contract failed, and in order to get the work completed it was necessary to allow him large adjustments and to sublet a considerable section of grading to another contractor at an advance of 4.5 cents per yard, making the cost 20.5 cents per yard. All these contracts carried free transportation and other concessions to the contractor, amounting to not less than 3.5 cents. The general average contract price of these twenty-nine contracts was 20.8 cents roadbed measurement.

The Florida East Coast paid for roadbed of common sand per cubic yard eighteen cents, and on wet ground paid forty cents per cubic yard.

In 1903 the Western Railway of Alabama paid, according to contract for 190,000 cubic yards grading done in this manner, 14.75 cents per cubic yard for earth and thirty-four cents for hard pan. The contractor lost money on this work. Wages were twenty-five to fifty per cent. higher in 1914, so these figures become 18.44 cents and 42.5 cents at least, because mule hire has raised fifty per cent. and feed thirty per cent.

The Vandermere Road, constructed in 1908, paid twenty-five cents for excavation, and for embankment from twenty-five to thirty-three and one-third cents per cubic yard.

Relation of Contract Prices to Actual Costs.

The contract prices do not represent the cost to the railroad company. The extras on three branches of the Norfolk & Western Railway ranged from two cents to seven cents ① per

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① See details of grading costs Petersburg Belt Line, Indian Creek Branch and Lynchburg Belt Line in files of the Division of Valuation.

cubic yard. The corresponding excess on the Winston-Salem Southbound Railroad ② averaged about 4.5 cents per cubic yard on all grading quantities. Such extra costs on a number of extensions have been tabulated by the Atlantic Coast Line, and stated in a percentage of the construction cost. On six new lines this amounted to over eleven per cent. On one of these lines, the Washington & Vandermere Railroad, these extra costs on whole work were 9.2 per cent. of entire cost and that chargeable to grading alone amounted to 2.7 per cent. On a change of line of the Atlantic Coast Line Railroad the extra costs were over ten per cent. of the construction cost.

From these facts, and for the further reasons given in detail in the statement of Mr. Durham, it is evident that the prices applied to the Atlanta, Birmingham & Atlantic Railroad in the report should be materially increased.

Line West of Montezuma.

As to grading prices west of Montezuma, the grading cost on the Winston-Salem Southbound Railway, completed in 1911, as corrected by extra bills, etc., amounted to the following:

Clearing	$42.50 per acre
Grubbing	53.70 per acre
Earth	.26
Hard pan	.35
Loose rock	.40
Solid rock	.75

The average prices on the Virginian Railway (materials measured in excavation) were for

Earth	$ .24
Loose rock	.42
Solid rock	.85
Overhaul	1½ cents

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② See details of grading costs thereof in files of the Division of Valuation.

Contract prices paid by the Louisville & Nashville Railroad, including the year 1910, averaged over a large number of pieces of work:

Clearing	$39.57 per acre
Grubbing	51.54 per acre
Earth excavation	25.8 cents.
Loose rock	39.1 cents
Solid rock	71.5 cents
Overhaul	.014 after 500 feet free haul.

On the Atlanta & Birmingham Line (Seaboard Air Line Railway), constructed 1904, average cost of grading, including correction for extra bills, was as follows:

Earth	21.7 cents.
Loose rock	45.9 cents.
Solid rock	81.6 cents.
Overhaul	1.21 cents.

The judgment of this committee is that the prices that should be allowed on the Atlanta, Birmingham & Atlantic Railroad west of Montezuma are:

Earth	from 24 to 25 cents generally.
Calico clay	35 cents.
Loose rock	43 cents.
Solid rock	80 cents.
Overhaul, with 500 feet free haul	1½ cents.
Overhaul, train, per 1000 foot yards, after one mile free haul	2 cents.

A large deduction has been made for swell of rock and loose rock in embankments, and Mr. Durham has called attention to the fact that measured swell on the Atlanta, Birmingham & Atlantic Railroad soon after embankment was made was only seventeen per cent. Evidently the report of reproduction cost has been based upon data obtained from such note books as that of Trautwine. Information has been obtained from Mr. J. C. Trautwine, Jr., as to the basis for this data published, and in reading over this correspondence it is found that the statements are all based upon the condition of the rock directly after it has been put in an embankment and not its condition a few years after construction is completed. The effect of rains, settlement, disintegration, etc., it is believed will generally result in rock and loose rock fills in a few years after embankments are completed occupying about the same space that the material occupied in original cuts; and this is especially true wherever excavation is made by means of steam shovels.

Account No. 5. Tunnels.

Mr. Durham calls attention to the fact that the unit prices allowed for tunnel work result in a total cost figure less than the original cost, although labor at the time the road was built was at a lower price than in 1914. This indicates that for this special work, not large in amount, the unit figures are somewhat low. The price for packing allowed is $1.75; the ordinary prevailing price is $2.50. The average price for tunnel excavation itself on the Louisville & Nashville Railroad on a large number of tunnels is $3.09.

The actual prices under which contracts were awarded do not represent in either tunnels or grading the actual cost thereof. For example, the tunnels on the Atlanta & Birmingham line of the Seaboard Air Line Railway were let at three dollars per cubic yard, but the actual cost per cubic yard, after taking into account the extras, ranged from three dollars to $3.24 per cubic yard. On the Virginian Railway tunnel excavation averaged $3.81 per cubic yard. These records indicate that the price for tunnel excavation for this short tunnel should be about $3.25 per cubic yard.

Account No. 6. Bridges, Trestles and Culverts.

The cost of this class of construction on the Atlanta, Birmingham & Atlantic Railroad is largely dependent upon local conditions, and we have gone over this subject in detail with Mr. Durham and his records of the Atlanta, Birmingham & Atlantic Railroad, and agree with the conclusions and recommendations made by him as to the proper prices, calling attention to the main reasons for higher figures, *i. e.*, the difficulty in getting materials within reasonable distance from the structure, and the fact that some of the prices in the report were based upon contract prices when labor was at a lower figure than in 1914. Foundation excavation on the Carolina, Clinchfield & Ohio was one dollar dry, two dollars wet, per cubic yard. On the Winston-Salem Southbound the corresponding figures were one dollar and two dollars and ten cents. On the Virginian it was generally about eighty cents or over dry, and two dollars or over wet.

The average price per pound of all steel superstructure purchased by the Central of Georgia Railway 1906 to 1912, inclusive, was $0.0418; on the Virginia Southwestern Railroad truss spans cost $0.045 and viaducts $0.0415. This is mentioned particularly to call attention to the fact that four cents, the price used in the report, does not allow for any special local conditions such as are met with in new construction.

Bridge ties and guard rails on trestles should, of course, carry the same price in place as the other framed lumber.

Account No. 8. Ties.

Only a small per cent. of the ties required can be obtained locally in the construction of a new line, even though tie timber exist in the vicinity; therefore a large amount must be purchased elsewhere and hauled in. The extra handling alone will amount to a considerable sum, and the records of carriers show an allowance of five cents should be made on each tie to cover this. The increased demand will likewise raise the price of ties in the adjacent markets.

Account No. 9. Rails.

Several railroads in the South, including the Atlanta & West Point Railroad and the Western Railway of Alabama, have been buying rails under the special inspection of R. W. Hunt & Co. at a cost of fifteen cents per ton, instead of five cents per ton which prevailed before that date. Other railroads have paid some premium for rails on account of special form of specification requirements. An allowance should be made for these extras in unit prices for new rail.

The price of relay rail assumed in the report is twenty-three dollars per ton with fifty cents added for handling. Attention is called to the fact that the price at which this rail is carried in the books on some roads is nothing but an arbitrary figure.

It does not represent the price at which such rail is bought or sold in the market, and that this average figure is more nearly twenty-six dollars per ton, to which should be added an allowance for freight and handling from the point at which it can be purchased.

Account No. 11. Ballast.

Under this account Mr. Durham explains the oversight in reference to the basic cost thereof f. o. b. cars, and the committee fully agrees with this explanation.

In ballasting the Winston-Salem Southbound Railway, the first surfacing for the beginning of operation was Cheraw gravel, coal culm and cinders. The prices paid were as follows:

Gravel	53 cents
Culm	$1.13
Cinders	55 cents

The cost of coal culm included the cost of loading on Norfolk & Western Railway and the freight to the Winston-Salem material yard; there was also a freight charge on the cinders, which came from other roads. These figures are mentioned in substantiation of statements and estimates made by Mr. Durham on ballast as applied to the reproduction of the Atlanta, Birmingham & Atlantic Railroad.

Account No. 12. Track-laying and Surfacing.

Mr. Durham has given many good local reasons in disapproval of the low figure named in the report for track-laying and surfacing. The tabulated statement next hereto attached shows actual record costs on other roads in the south and proves that this figure proposed by Mr. Durham is a proper and reasonable one.

The percentage allowed for loss of material in connection with track-laying, etc., is not sufficient in the report. What may be ordinarily expected is shown by the actual records in the case of work on the Winston-Salem Southbound Railway, which are as follows:

Ties	6.1	per cent.
Track Bolts	3.8	per cent.
Nut Locks	4.5	"
Spikes	3.6	"
Angle Bars	1.8	"

TRACK-LAYING AND SURFACING.

Cost per Mile of Track

LYNCHBURG BELT LINE, NORFOLK & WESTERN RAILWAY.

Main line 24 miles; sidings 8 miles; total 32. Completed in 1909. Track-laying and surfacing on temporary ballast........ $1,570.00

PETERSBURG BELT LINE, NORFOLK & WESTERN RAILWAY.

Main line 10.56 miles; sidings 4.11; total 14.67. Built in 1910. Cost for track-laying and surfacing........ 2,318.00

INDIAN CREEK BRANCH, NORFOLK & WESTERN RAILWAY.

Main Line 12.15 miles; sidings 3.29; total 15.44. Completed in 1913. Cost for track-laying and surfacing........ 3,590.00

(On this line there were thirteen (13) bridges, two of them steel viaducts and track-laying necessarily stopped during the period necessary to erect each structure. Such delays, which are common to all new construction, add to the cost of track-laying.)

NOTE:

Considering track labor cost in 1909 as a basis:

That employed on Petersburg Belt Line in 1910 was 8 per cent. higher.

That employed on Indian Creek Branch in 1913 was 22 per cent. higher.

This represents the average increase in the South during the peroid 1909 to 1914, and therefore appears in all costs.

Cost per Mile of Track

DOUBLE TRACK BETWEEN GILMERTON AND SUFFOLK, VA., NORFOLK & WESTERN RAILWAY.

In 1913, 16.4 miles of double-track and 2.48 miles sidings were constructed between these points. The laying and surfacing of 18.85 miles of track, $52,096, cost at the rate per mile of........ $2,764.00

Setting 24 switches and 3 grade crossings........ 2,460.00

SOUTHERN RAILWAY.

Some recent track-laying and surfacing on Southern Railway has cost, without charge for equipment, about........ 1,900.00

WINSTON-SALEM SOUTHBOUND RAILWAY.

Track-laying and surfacing 113 miles of tracks with 85-pound rail, using generally stone ballast in main track, has averaged........ 2,005.22

Average cost of placing 149 switches was $43.50 each.

Branch Road in Illinois.

In 1910 the Herrin & Southern Railroad was constructed in Illinois, having thirty-eight miles main line, seven miles siding; total forty-five miles. Cost of track-laying work was carefully kept in accordance with Interstate Commerce Commission Accounts:

Rail	85 pounds
Ties, white oak	3200 to the mile
Ballast applied to depth of 12 inches under ties, and consisted of about 30 per cent. cinder, balance being gravel.	
Maximum curvature	$2\frac{1}{2}$ degrees
Per cent. of curvature	20

The cost of this particular track mile, omitting cents, was as follows:

Material yard labor		$156.00
Tracklaying labor	$611.00	
Rent of equipment	55.00	
Work train service	177.00	
Tools	13.00	
Fuel and miscellaneous items	12.00	
Railroad fares, foreign roads	9.00	
		877.00

Maintenance During Construction.

Labor on roadbed	$23.00	
Labor on track	141.00	
Miscellaneous	1.00	
Work train service	1.00	
		166.00

Surfacing with Ballast.

Labor	$881.00		
Tools	13.00		
Fuel, ice, work train service	11.00		
Freight, foreign roads	1.00		
		906.00	
Total			$2,105.00

The cost records of the Atlanta & Birmingham Line (Seaboard Air Line Railway), 163 miles main track, show that the average cost of track-laying and surfacing the main track was: $2,516.00 per mile.

Account No. 15. Crossings and Signs.

A new railroad cannot cross underneath an old one without paying a considerable cost for the right for doing so, and this means either a money consideration or else the actual building of structures to carry the track of the older road. The expenditure so made is a correct cost toward the construction of the new road, and a failure to make an inventory of this is taking away from the new road a portion of its real cost.

The report is incomplete to the extent that these reproduction costs have not been assigned to the Atlanta, Birmingham & Atlantic Railroad.

Accounts Nos. 16 and 17. Buildings.

While a close examination has been made by Mr. Durham of the inventory of buildings in order to determine where the discrepancies are between the reported cost of reproduction and what their real cost will be, provided all items are included, the result is only a proof that the reproduction cost is too low. Some comparative data on the costs of other roads will reveal some of these discrepancies. The Southern Railway has taken record of several frame combination depots erected by them between 1905 and 1914, and find that the average costs of buildings having a less area than 1000 square feet is 10.29 cents per cubic foot. Buildings having an area of 1000 to 2000 square feet cost per cubic foot 9.56 cents. Those of 2000 to 3000 square feet, 8.68 cents per cubic foot. From 3000 to 6000 square feet, 7.57 cents per cubic foot.

Combination passenger and freight stations on the Norfolk & Western Railway, built according to their standard plans, having an area of 2200 to 2700 square feet, cost from 11¼ cents to 14½ cents per cubic foot, dependent largely upon the locality where built, the variations in cost arising largely from the cost of both material and labor. Four brick passenger stations, with sheds, containing from 65,000 to 83,000 cubic feet, cost at a rate varying from twenty-one cents to twenty-five cents per cubic foot, dependent upon local cost of material and labor.

Norfolk & Western standard section-foreman's house having an area of about 870 square feet cost ten to eleven cents per cubic foot. Section-hands' house, having an area of 285 square feet, cost 9.7 cents per cubic foot. Standard tool house having an area of 168 square feet cost 6.4 cents per cubic foot, plus grading, etc.

Account No. 23. Wharves and Docks.

The reproduction cost figures contained in the report in connection with the Brunswick Terminal omit items, apparently due to the fact that as much business is not being done as the writer of the report seems to consider proper for this terminal. The fact that the business at this terminal has increased about sixteen per cent. during the last year and that the business of the whole line has increased fifteen per cent., indicates that the business at this terminal as well as of the railroad as a whole will continue to expand with the general improvement now taking place in the Southern States. It is an approved practice for railroads to discontinue the use of long sidings during light business, likewise to discontinue the use of slips or wharves during such a period, and thereby save in maintenance costs. Likewise quickly to connect up and add tracks and other facilities when business increases. The fact that only a small number of the berths for vessels is now required as compared with the whole number originally built, is no good reason for omitting any cost items. Buildings, etc., should be given the reproduction cost after allowance for deferred maintenance.

The report on the geology of the road states that marl was met with in dredging these slips, and yet, notwithstanding this, and the record that material from the slips was pumped to various distances up to a maximum of 3000 feet instead of an ordinary maximum distance of about 1500 feet; and notwithstanding the higher wages paid in 1914 than applied when these slips were constructed, a less price is allowed per yard than when the dredging was originally done. The further fact has been overlooked that the material was partly rehandled by teams after its delivery from the pump dredge. These statements alone indicate that a price of twelve cents a yard, much less than original cost, is too low. The fact that the slips have been partially filled up seems to have had some bearing in fixing the price in the contract. Important channels in all the harbors and roadsteads on the east coast fill up quite rapidly. Notable examples are at New York, Philadelphia and Norfolk; and the Government is constantly dredging the channels. Around the slips of the Norfolk & Western Railway at Norfolk there was redredging done in the years 1905, 1906, 1908, 1909, 1911, 1912, 1913 and 1914, the maximum in any one year being over 520,000 cubic yards, the maximum cost having been from fifty cents per yard, twenty-five and one-half cents, nineteen cents, and down to nine cents, in connection with another kind of contract work, at which dredging price the contractor lost money. The records of dredging done by the Government in various Southern harbors show extreme variation, indicating that the prices are fixed entirely by local conditions prevailing at the time of contract. The fact that low figures for dredging are in some special cases secured from a contractor who happens to be doing other work at the same time, does not make such figure a basic one. In some special cases, leaving out a number of extra costs that were not included in the contract, as low as nine cents has applied. Prices obtained in connection with other contract work being done by the same concern or by reason of other easy conditions, do not have a bearing in fixing prices for dredging materials, such as were met with at Brunswick, consisting of marl and the pumping of it for a distance of 2000 or 3000 feet, and the further spreading of it with teams, all of which was originally required. The Central of Georgia Railway in 1910 dredged 325,000 cubic yards at Savannah, the original contract price having been fifteen and three-quarter cents. The contractor failed at this figure and the contract was awarded another concern at eighteen and one-half cents per cubic yard, and this concern did all the work.

In 1912 the Atlanta, Birmingham & Atlantic Railroad paid thirteen cents per cubic yard for redredging the Brunswick slip. In the same year the Atlantic Coast Line dredged 275,000 cubic yards, with pump, at Savannah, and paid eighteen cents therefor, and in 1913 it did further dredging, paying therefor twenty cents per cubic yard.

When these statements are considered in connection with the special difficulties that are requirements at Brunswick, the figure asked for by the Atlanta, Birmingham & Atlantic Railroad, namely, eighteen cents per cubic yard, is certainly a minimum one in the opinion of the committee.

Telegraph Line.

The reproduction report quotes in part from contract for telegraph property, and this statement shows clearly that the line is owned by the Atlanta, Birmingham & Atlantic Railroad and is jointly operated and maintained. It is clear, therefore, that the inventory of this telegraph line should be made in the reproduction report of the Atlanta, Birmingham & Atlantic Railroad, giving credit to the telegraph company for such part thereof as it can claim under the contract.

Account No. 39. Assessments for Public Improvements.

Under Appendix "E" the statement is made that certain payments of assessments for public improvements were found in the records as having been made by the Atlanta, Birmingham & Atlantic Railroad. This is part of the cost of the building of any railroad, and it is therefore part of the reproduction cost, and should be included in the inventory. The paving of street crossings, for example, adds to the utility and value of the approach to the railroad track, and it cannot be properly assumed that the railroad could be reproduced without first having paid these same assessments. The assumption that such assessments go proportionately to the value of adjacent property is not proven by the general property records found in any city or county.

Account No. 42. Reconstruction of Road Purchased.

On Valuation Section No. 11 no inventory is made of the property acquired from the Eastern Railway of Alabama, as described in detail in the statement of Mr. Durham. The acquirement of this property was necessary to the construction of the Atlanta, Birmingham & Atlantic Railroad, and as a matter of fact the tracks were used to cheapen its construction when the grading work was in progress. This purchase was in the nature of a right of way, notwithstanding the fact that new alignment and gradient were adopted, and all grading, whether of the existing roadbed or not, should be included in the inventory.

Materials and Supplies.

Under Appendix "D" the report refers to a considerable amount of materials and supplies on hand. However, an inventory is not made thereof. This committee does not see any reason why this should not be embodied in the report as part of the property of the Atlanta, Birmingham & Atlantic Railroad.

Patterns.

Under Appendix "F" a stock of patterns is mentioned, and the statement is made that it is not known whether they were paid for out of construction fund or out of operating fund. It is submitted that it makes no difference how materials on hand were paid for. If they exist at date of valuation they must be inventoried as a part of the property of the railroad.

EQUIPMENT.

Attention is particularly called to the statements in Mr. Durham's report as to equipment and to the general position as to depreciation.

Overhead Costs.

The report includes a small allowance under Accounts 71, 72, 73, 74, 76 and 77, aggregating two per cent. in addition to interest, Account 75, and engineering, both of which have been commented upon. Under engineering there should be a further allowance made for that proportion of engineering connected with the acquirement of equipment, and an allowance should be made to cover the various contingencies which cannot possibly be provided for under each account in the detailed inventory. The report omits entirely reference to working capital; this should be included in the inventory.

Appreciation.

Depreciation.

No allowance has been made in the report for appreciation. Notwithstanding the fact that the Atlanta, Birmingham & Atlantic Railroad has not been earning full charges on all portions thereof, the property has been correctly maintained, and the roadbed has improved through the work upon it in a manner that cannot be covered or included in such units as yards of material with prices attached. In other words, this roadbed at date of June 30, 1914, is worth much more money than any roadbed that can be placed there during the recommended construction period of five years; and hence a sum of money should be allowed to account for this appreciation that has occurred during the full life of the roadbed.

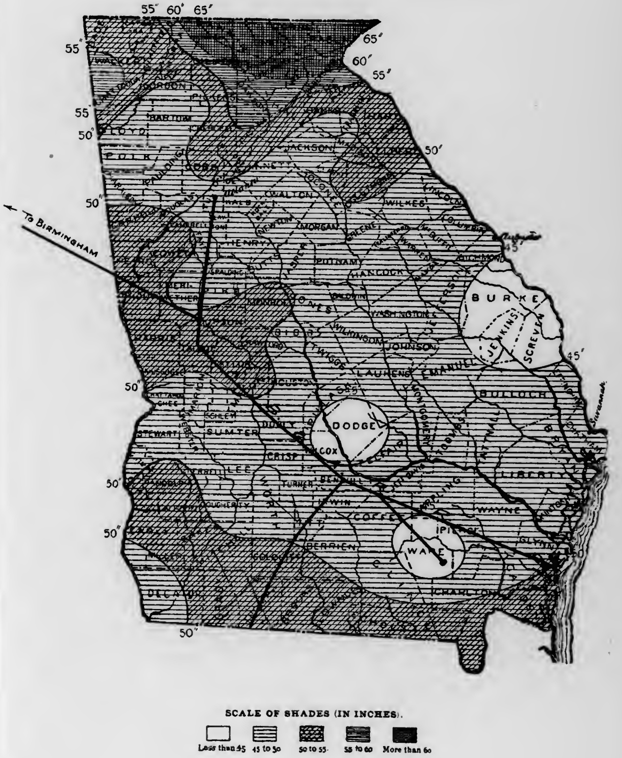
Attention is called to the fact that an error is made in the report in depreciating riprap twenty-five per cent. As a matter of fact, riprap improves with age and it should be included under appreciation. Piles under water level or in moist earth do not depreciate, and yet a depreciation figure has been applied to them. Cast-iron pipe does not depreciate, yet a depreciation figure has been applied to it. Excavation of foundations has been depreciated. The committee can see no argument for such a course.

It is clear from the report that in estimating depreciation no proper allowance has been made for the effect of the maintenance work that is continually being done upon the various units of property.

It is noted from the report that road tools are arbitrarily depreciated fifty per cent. This is certainly an error, first, because the scrap value of all the expensive tools is quite high; and, second, and more important, a large portion of road tools as well as other tools have an indefinite life.

NOTE.—Depreciation will be covered more fully in a further statement by Judge Brantley.

Normal Annual Precipitation Chart for Georgia.



INTENTIONAL SECOND EXPOSURE

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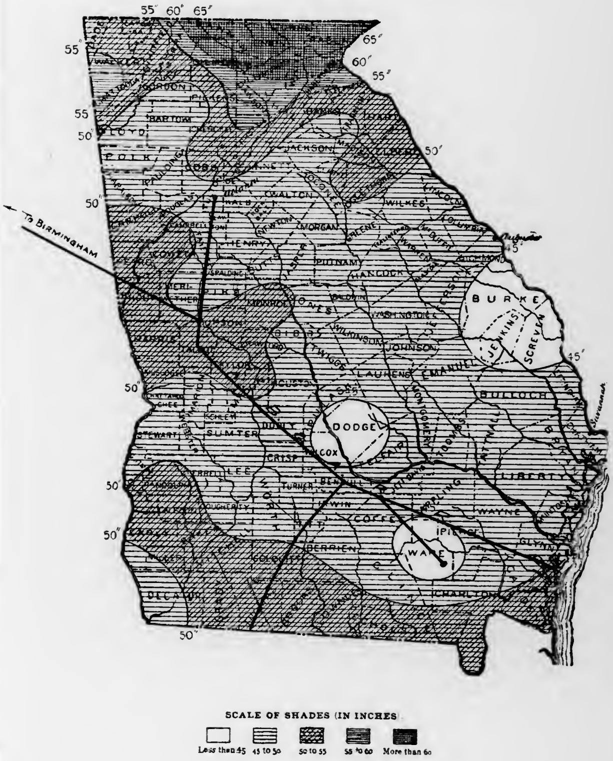
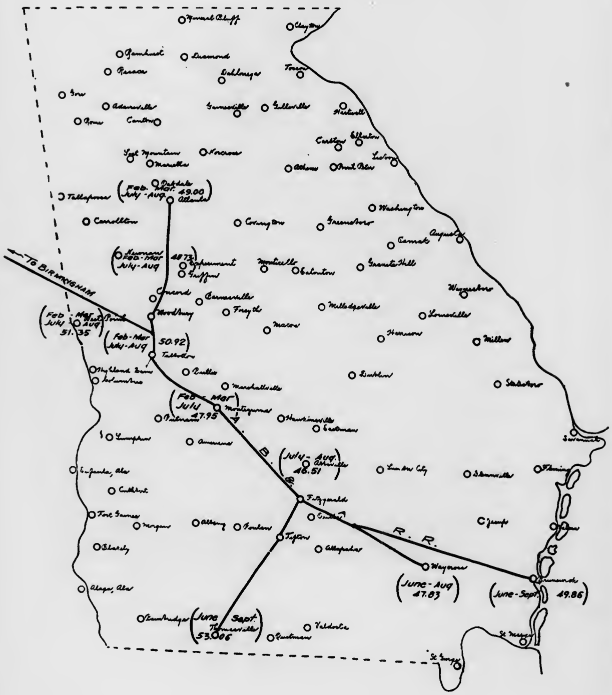


STATE OF GEORGIA
NORMAL ANNUAL PRECIPITATION IN INCHES
1895 TO 1915 INCL.
SHOWING MONTHS OF HEAVIEST RAINFALL
—ALONG—
A. B. & A. R.R.
Compiled by U S Weather Observer



NORFOLK SOUTHERN RAILROAD.

COMMENTS UPON FEDERAL INVENTORY AND COST OF REPRODUCTION.

Reproduction Period.

The Engineering Committee, Southern Group, being well acquainted with this railroad, the condition of rainfall and the general wet condition of a large portion of the soils, as well as the numerous river crossings, believe that for the detailed reasons given by Mr. Nicholson, the length of the period allowed for reproduction in the report is entirely too short, and that it should be, exclusive of proper time for organization surveys, at least four years, and that organization surveys, etc., will add about two years.

Reference is herein made to the table of length of construction periods shown on page 6, specially that of the Washington & Vandermere Railroad, Atlantic Coast Line and of the Atlanta & Birmingham Line (Seaboard Air Line).

Account No. 1. Engineering.

The allowance made for this is too low, as explained in detail by Mr. Nicholson, and should be five per cent. of the road accounts, exclusive of right of way, with a minimum of $750 per mile.

Reference is made to the tabulated statement in substantiation of this, shown on page 10.

Account No. 3. Grading.

The unit prices named are low as compared with the records of the carrier and with other roads in the same district. Full consideration is not given for the heavy rainfall each year, which is even greater than on the Atlanta, Birmingham & Atlantic, nor to the long interruption during rainy seasons, nor to the wet condition of the soil during long periods.

Reference is made to actual costs of grading on Southern roads, stated on pages 12, 13 and 14, and also to the tabulation therein referred to made by the Atlantic Coast Line Railroad, of the average unit prices under which twenty-nine contracts were completed since the year 1907. These prices have also been tabulated so as to determine the equivalent excavation price for grading (*i. e.*, one-way measurement), and it is found to be 31.7 cents per cubic yard.

Account No. 6. Bridges.

The unit prices are too low, as explained by Mr. Nicholson, primarily on account of local conditions and also due to omission of full allowance for transportation in a number of cases.

Account No. 8. Ties.

Attention is called to the fact that ties cannot be obtained locally in sufficient numbers to construct this line, especially between river crossings; consequently the prices named are too low on this account, as well as on account of omitted items of transportation.

Account No. 9. Rails.

The relay price in the report does not represent the price at which such rail is bought or sold in the market. This average figure is more nearly $26 per ton, to which should be added an allowance for freight and handling from the point at which it can be purchased.

Account No. 11. Ballast.

The unit prices for ballast are too low on account of local conditions as fully explained in Mr. Nicholson's statement. See in this connection statement in reference to certain ballast costs on other roads, pages 16 and 17.

Account No. 12. Track-laying and Surfacing.

Allowance for losses of materials is not great enough for reasons stated on page 17. The cost of track-laying and surfacing is too low for reasons given in detail by Mr. Nicholson, and also as fully explained by reference to costs on other roads on pages 17, 18 and 19.

Account No. 15 Crossings.

Overhead crossings paid for by the Norfolk Southern are not allowed for as they should be. See in this connection treatment of the same subject on page 20.

Accounts Nos. 16, 17 and 18. Buildings and Water Stations.

Certain items of erection costs are omitted. See Mr. Nicholson's statement. These oversights should be corrected.

Account No. 23. Wharves and Docks.

Omissions of dredging at Norfolk on the Berkley side of the river are fully explained by Mr. Nicholson. The local condition as to dredging in this section makes twenty cents per cubic yard for handling in scows too low. As stated on page 22, costs at Norfolk to the Norfolk & Western Railway have been as high as fifty cents per cubic yard.

Account No. 76. Interest during Construction.

The period of construction should be four years for grading, track work, and ballasting complete in addition to about two years for organization surveys, etc. This calls for interest at six per cent., which should be spread over a total period of about six years.

General Expenses, Accounts Nos. 71, 72, 73, 74, 76 and 77.

Cannot be properly gauged by the corresponding cost of 1.2 per cent. on the Winston-Salem Southbound because that road was constructed under the supervision of two parent lines, the Atlantic Coast Line Railroad and the Norfolk & Western Railway, so that the accounts of the Winston-Salem Southbound do not show these costs in full. There is certainly no reason why a figure should be named less than that in the report of the Atlanta, Birmingham & Atlantic of two per cent.

MSH 21323

END OF
TITLE